

## SECTION 2: AMNET Listing and Delisting Status

Benthic macroinvertebrate assessments provide the Department with a direct measurement of aquatic life beneficial uses in nontidal rivers and streams, the results of which have been incorporated into the New Jersey's List of Water Quality Limited Waters since 1994. In 2001, an Interagency 303d Technical Workgroup comprised of representatives from NJDEP, USEPA Region II, and USGS reviewed the methods EPA used to develop the macroinvertebrate assessment protocols for New Jersey. Based on this review the workgroup developed an assessment procedure to apply to the macroinvertebrate network in New Jersey and made recommendations as to how the individual sites should be assessed with respect to 303(d) and the Integrated List. The assessment process summarized here and discussed in the Integrated Water Quality Monitoring and Assessment Methods (Methods Document) is based upon the recommendation of this workgroup. This procedure has been applied to the current AMNET results (round 2). If only a round 1 assessment was performed on a site (completed in the mid-1990s), this assessment was simply carried over to the current assessment.

### **I. All Pinelands assessments have been placed on Sublist 3 (Insufficient Data).**

The assessment metric depends upon a unimodal response from the biological indicators as they respond along an urban gradient. Biological communities contained within the low pH waters of the NJ Pinelands represent unique biological communities which appear to respond to anthropogenic disturbance in manners that make them difficult to assess with the metric as it is currently calibrated. It is the position of the Department, based upon recommendations of the Workgroup, that an alternative bioassessment method needs to be applied here. An appropriate biometric for the Pinelands is currently under development.

Pinelands sites are defined as sites located on waterbodies possessing PL designations as per the Surface Water Quality Standards. These include waters contained within both the "Preservation" and "Protection" areas of the New Jersey Pinelands.

### **II. For sites not designated as PL waters; Nonimpaired and Severely Impaired status are assessments of high confidence and listed accordingly, with non impaired sites on Sublist 1 and impaired sites going on Sublist 5 (denoting non attainment).**

Nonimpaired sites are characterized by desirable levels of diversity and an abundance of macroinvertebrate families characteristic of clean water. Macroinvertebrate communities possessing characteristics necessary to generate NJIS scores which lead to this assessment category possess a rich assemblage of varying taxa, with groups well balance in terms of relative abundance. Such communities are recognized by the scientific community as representing the desired condition for streams outside the pinelands.

Severely impaired status, in contrast, results from communities possessing significantly diminished numbers of taxa, especially of families characteristic of cleaner waters. Taxa present are characterized by large numbers of individuals often known to be tolerant of

degraded water and habitat quality. Such communities are significantly less desirable than those possessing characteristics of nonimpaired conditions.

### **III. Of moderately impaired sites – define unique sites and seasonality.**

Moderately impaired sites will be listed on Sublist 5 with the exception of the unique sites listed below. Unique sites and seasons will be initially listed on Sublist 3. For details regarding the protocols and criteria for defining “unique sites” within the Integrated List, the reader is referred to Appendix IV contained within the Methods Document.

- **Unique Sites:**

1. **Small Stream Size:** The AMNET protocols as calibrated by EPA are not applicable to small headwater streams. AMNET sites at points that represent the downstream terminus of a catchment area of less than 6 sq. mi. will go on Sublist 3. Catchment size here is based upon the catchment area draining to the AMNET site. With no other complicating factors, catchments of 6 sq. mi. or greater go on sublist 5 (non attainment).
2. **Lakes:** AMNET sites immediately downstream of lakes and impoundments can develop communities whose structure reflects a response to material released by the impoundment regardless of the water quality present in either the lake or the stream in question. The resulting assessment score at these sites may reflect this phenomenon and not be indicative of water quality. In response, the Department employed a GIS coverage which delineated AMNET sites located within 450 feet of a dam. The Department realizes that there are probably many more sites in New Jersey who lie outside this 450 ft. limit and possess assessment scores affected by the adjacent impoundments. These sites will be identified through future investigations.
3. **Seasonality:** In winter, a significant portion of the macroinvertebrate population may be present as minute instars who will pass through the sieve employed to isolate “macroinvertebrates” from smaller invertebrates. This in turn may influence the resulting assessment score, possibly misrepresenting the community’s status. AMNET assessments of “moderate impairment” based upon data collected in a December – March window will go on sublist 3. Assessments of moderate impairment from samples taken during a April – November window, the period approximating USEPA’s original sampling period employed during the assessment score calibration, will go on sublist 5 (non attainment).

**Tidal Sites.** The current assessment protocols are not designed for tidal waters. AMNET sites mistakenly placed at or below the head of tide are not assessed.

**Discontinued AMNET sites:**

Approximately 60 sites on the 1998 303(d) List have been discontinued for various reasons and have not been reassessed during the second round of macroinvertebrate assessments (1997 to 2001). Sites not in the pinelands have been simply carried over to sublist 5 until a method of reassessing these sites is determined. This applies also to Foulertons Brook, Green Brook on Park Drive, and North Branch Pennsauken Creek at Fellowship Road, all of which possess no known AMNET location, neither historical nor current. All reasonable effort will be made to see if these sites can be reassessed. In some if not many cases, however, access to the stream may no longer be possible.

Every reasonable effort will be made to reassess discontinued sites within the Pinelands area once a protocol is developed for this unique area. Here as well, as indicated above, access may no longer be possible.

Irregardless of the issues described above, it is important to note that many AMNET sites were removed from 303(d) status in the 2002 List simply because they had been assessed in the second round of biological monitoring (representing current status) as nonimpaired.

**Table 2-1**

Table 2-1 delineates the current status of all benthic macroinvertebrate assessment sites (AMNET sites) previously listed in New Jersey's 1998 303(d) List. AMNET assessments within the 1998 303(d) List are all contained within Sub-list II within the Appendix. In the Appendix of the 1998 List, they are recognized by the assessments of "slightly impaired", "mod. impaired," or "severely impaired" delineated within the column labeled "Pollutant/Impact: Biological." These assessments may also be identified by the presence of a "B" in the "Data Source" column on the far right side of the table (again in the 1998 List).

All sites on Table 2-1 of this Comparison Document are listed alphabetically by the waterbody name as delineated in the 1998 List (Waterbody 98) then by the location and the municipality as denoted in the 1998 List (Location 98, Municipality 98). In addition, the site number (far left column) is included as well as station name and location as currently indicated in the 2002 Integrated List (Station Name 02). This was done to avoid confusion because the municipalities assigned to specific sites have changed in some cases between 1998 and 2002. The column "Assessment 02" is the current assessment as per the 2002 List, "Comments" denote the reasons behind the assessments based upon the protocols summarized here. The last two columns apply to sites originally in the 1998 List but subsequently discontinued. The column "assessment carried over from 02" simply denotes the carry over assessments for these sites. The last column "status of site as of 02" indicates why the site was not assessed in round II.